



PAT McCrory
Governor

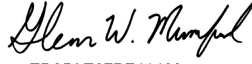
NICHOLAS J. TENNYSON
Secretary

MEMO TO: Roadway Project Engineers Teresa Bruton, PE
Randy Garris, PE
Mike Holder, PE

FROM: Glenn W. Mumford, PE Virginia Mabry
State Roadway Design Engineer

DATE: December 2, 2015

SUBJECT: Guide for Paving Shoulders Under Bridges – Standard
Drawings Revision and Design Manual Changes

DocuSigned by:

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This is to advise you of a recent revision to the 2012 Roadway Standard Drawings. The revision affects Standard Drawings 610.01, 610.02, and 610.03 – Guide for Paving Shoulders under Bridges Method I, Method II, and Method III, respectively. It also includes the addition of a new standard drawing – Guide for Paving Shoulders under Bridges Method IV.

New special details (610D01, 610D02, 610D03, 610D04) which address the revisions made to Standard Drawings are now available under [Connect NCDOT – Resources – Specifications – 2012 Roadway Standard Drawings - 2012 Revisions to Roadway Standard Drawings](#). Please use these special details in lieu of Standard Drawings effective with the March 2016 Let (December 8, 2015 turn-in).

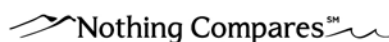
A complimentary change to Part I, Section 6-1 of the Roadway Design Manual will also be made. The addition of four details (Figure 1R and Figure 1S) will aid Roadway and Structure Design Engineers in determining the required paved offset width underneath a proposed bridge and the corresponding required bridge length. These details will be added to the Roadway Design manual in the near future.

If you have any questions regarding this letter, please contact Roger Thomas or me.

GWM/rdt
Attachments

ec: Joel Howerton, PE
Jim McMellon, PE
Division Engineers

Kevin Lacy, PE, CPM
Brenda Moore, PE
Roger Thomas, PE



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ENGLISH DETAIL DRAWING FOR
**GUIDE FOR PAVING
SHOULDERS UNDER BRIDGES**
METHOD I

SHEET 1 OF 1

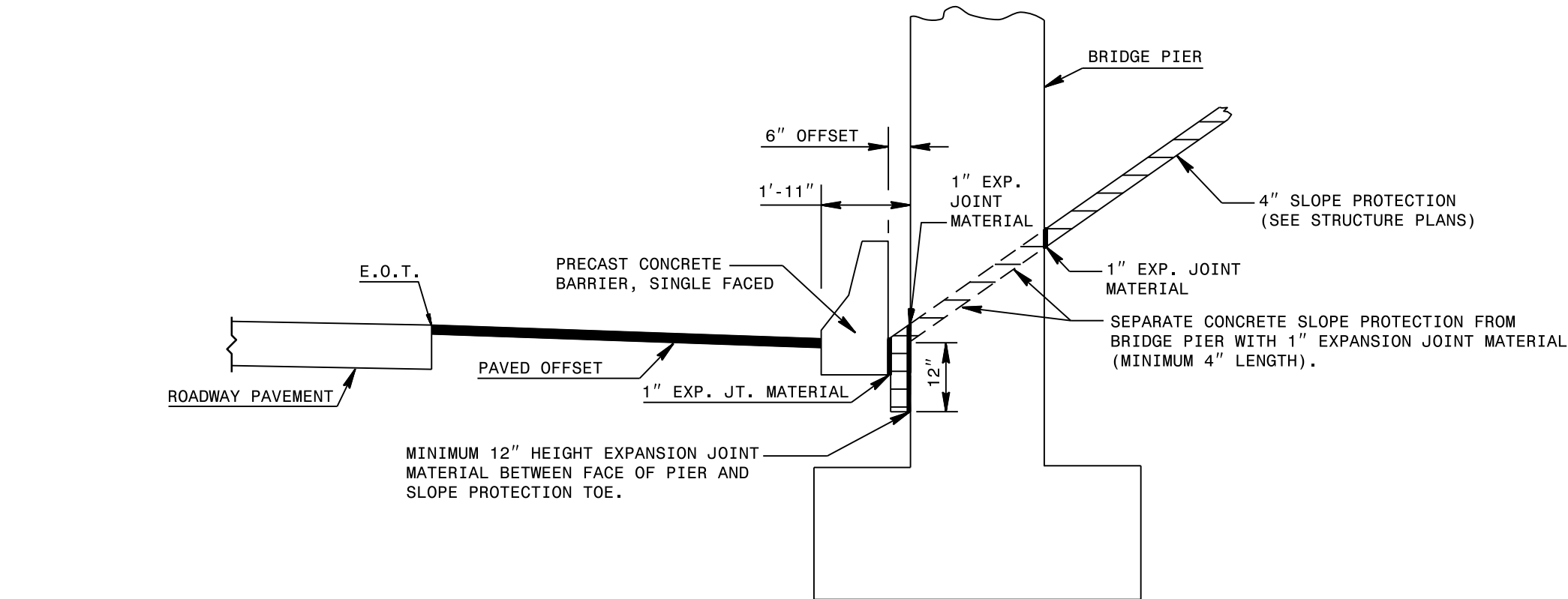
610D01

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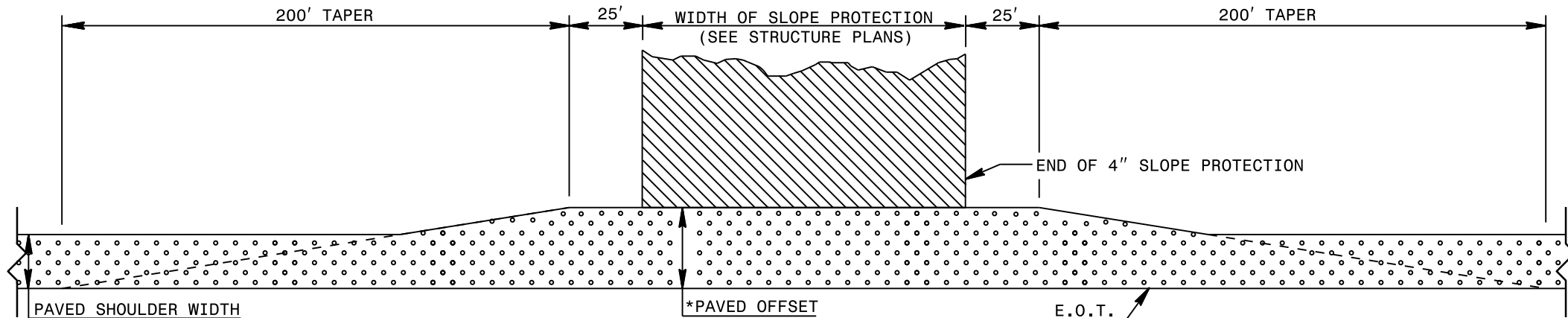
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**GUIDE FOR PAVING
SHOULDERS UNDER BRIDGES**
METHOD I

SHEET 1 OF 1

610D01



ELEVATION



PLAN

- NOTES:
- PAVE THE FULL WIDTH OF THE SHOULDER AND OFFSET AS SHOWN WITH SHOULDER PAVEMENT MATERIAL AS SHOWN ON PLANS.
 - *PAVED OFFSET BASED ON BRIDGE POLICY (SEE STRUCTURE PLANS).
 - PROTECT SLOPE WITH REINFORCED CONCRETE PAVING. CONCRETE BLOCK PAVING WILL NOT BE PERMITTED.



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ENGLISH DETAIL DRAWING FOR
**GUIDE FOR PAVING
SHOULDERS UNDER BRIDGES**
METHOD II

SHEET 1 OF 1

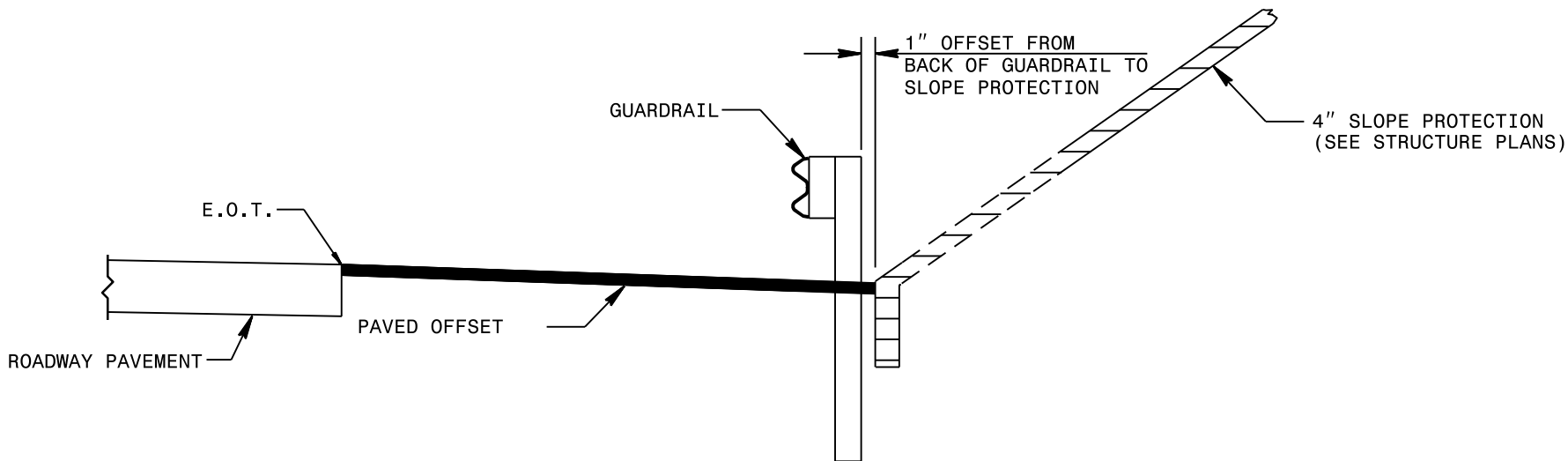
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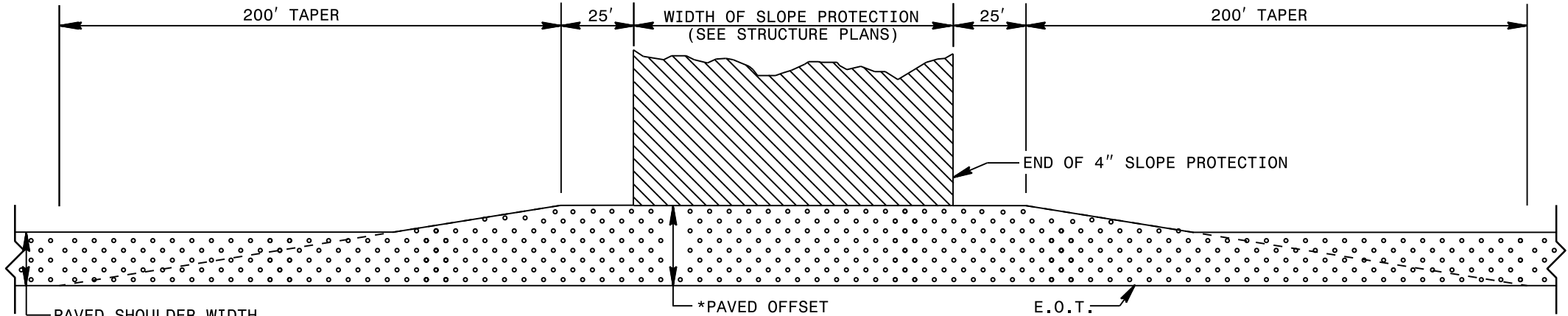
ENGLISH DETAIL DRAWING FOR
**GUIDE FOR PAVING
SHOULDERS UNDER BRIDGES**
METHOD II

SHEET 1 OF 1

610D02



ELEVATION



PLAN

NOTES:
PAVE THE FULL WIDTH OF THE SHOULDER AND OFFSET AS SHOWN WITH SHOULDER PAVEMENT MATERIAL AS SHOWN ON PLANS.
*PAVED OFFSET BASED ON BRIDGE POLICY (SEE STRUCTURE PLANS).
PROTECT SLOPE WITH REINFORCED CONCRETE PAVING. CONCRETE BLOCK PAVING WILL NOT BE PERMITTED.



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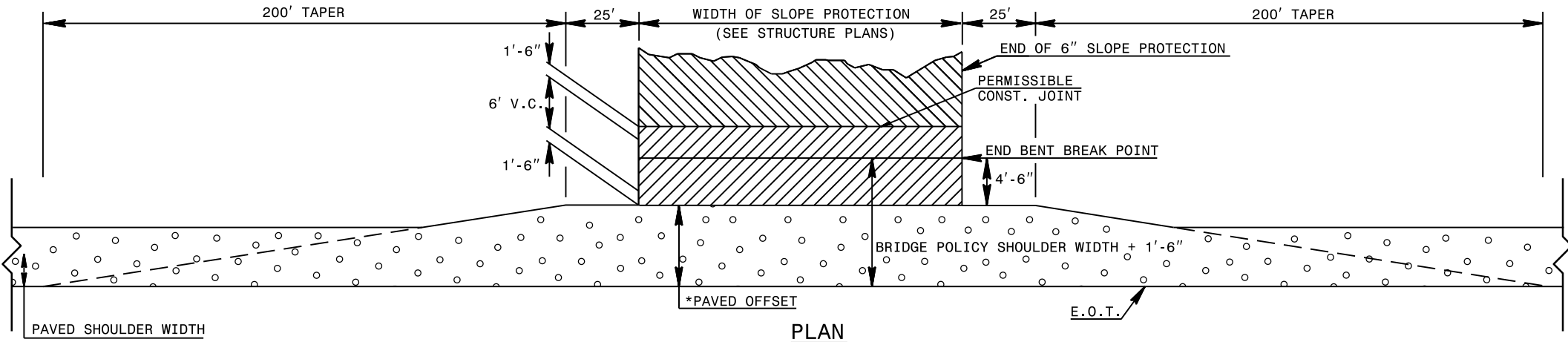
ENGLISH DETAIL DRAWING FOR
GUIDE FOR PAVING
SHOULDERS UNDER BRIDGES
METHOD III

SHEET 1 OF 1
610D03

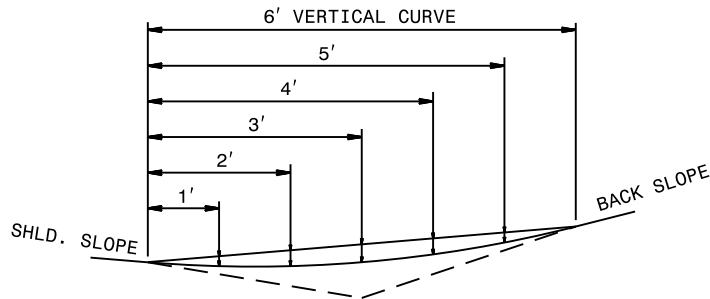
HORZ. DIM.	1½:1 BACK SLOPE									
	SHOULDER SLOPE									
	.04	.03	.02	.01	.00	-.01	-.02	-.03	-.04	-.05
1'	0.26'	0.27'	0.27'	0.27'	0.28'	0.28'	0.28'	0.29'	0.30'	0.31'
2'	0.42'	0.42'	0.43'	0.44'	0.44'	0.45'	0.46'	0.46'	0.47'	0.48'
3'	0.47'	0.48'	0.49'	0.49'	0.50'	0.51'	0.52'	0.52'	0.53'	0.54'
4'	0.42'	0.42'	0.43'	0.44'	0.44'	0.45'	0.46'	0.46'	0.47'	0.48'
5'	0.26'	0.27'	0.27'	0.27'	0.28'	0.28'	0.28'	0.29'	0.30'	0.31'

HORZ. DIM.	2:1 BACK SLOPE									
	SHOULDER SLOPE									
	.04	.03	.02	.01	.00	-.01	-.02	-.03	-.04	-.05
1'	0.19'	0.20'	0.20'	0.20'	0.21'	0.21'	0.22'	0.22'	0.23'	0.23'
2'	0.31'	0.31'	0.32'	0.33'	0.33'	0.34'	0.35'	0.35'	0.36'	0.37'
3'	0.35'	0.35'	0.36'	0.37'	0.38'	0.38'	0.39'	0.40'	0.41'	0.41'
4'	0.31'	0.31'	0.32'	0.33'	0.33'	0.34'	0.35'	0.35'	0.36'	0.37'
5'	0.19'	0.20'	0.20'	0.20'	0.21'	0.21'	0.22'	0.22'	0.23'	0.23'

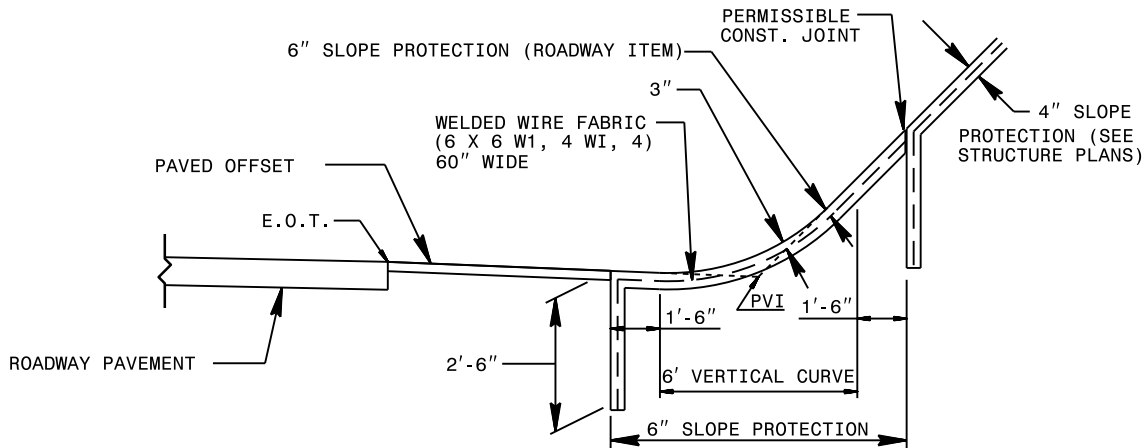
VERTICAL CURVE OFFSET
(FOR 6' V.C. AT BRIDGES)



NOTES:
PAVE THE FULL WIDTH OF THE SHOULDER AS SHOWN WITH SHOULDER PAVEMENT MATERIAL AS SHOWN ON PLANS.
* PAVED OFFSET BASED ON BRIDGE POLICY (SEE STRUCTURE PLANS).
PROTECT SLOPE WITH REINFORCED CONCRETE PAVING. CONCRETE BLOCK PAVING WILL NOT BE PERMITTED.
OFFSETS FOR 6' V.C. DENOTES FINISHED GRADE OF SLOPE PROTECTION.



TYPICAL SECTION



ELEVATION

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ENGLISH DETAIL DRAWING FOR
GUIDE FOR PAVING
SHOULDERS UNDER BRIDGES
METHOD III

SHEET 1 OF 1
610D03



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ENGLISH DETAIL DRAWING FOR GUIDE FOR PAVING SHOULDERS UNDER BRIDGES METHOD IV

SHEET 1 OF 1

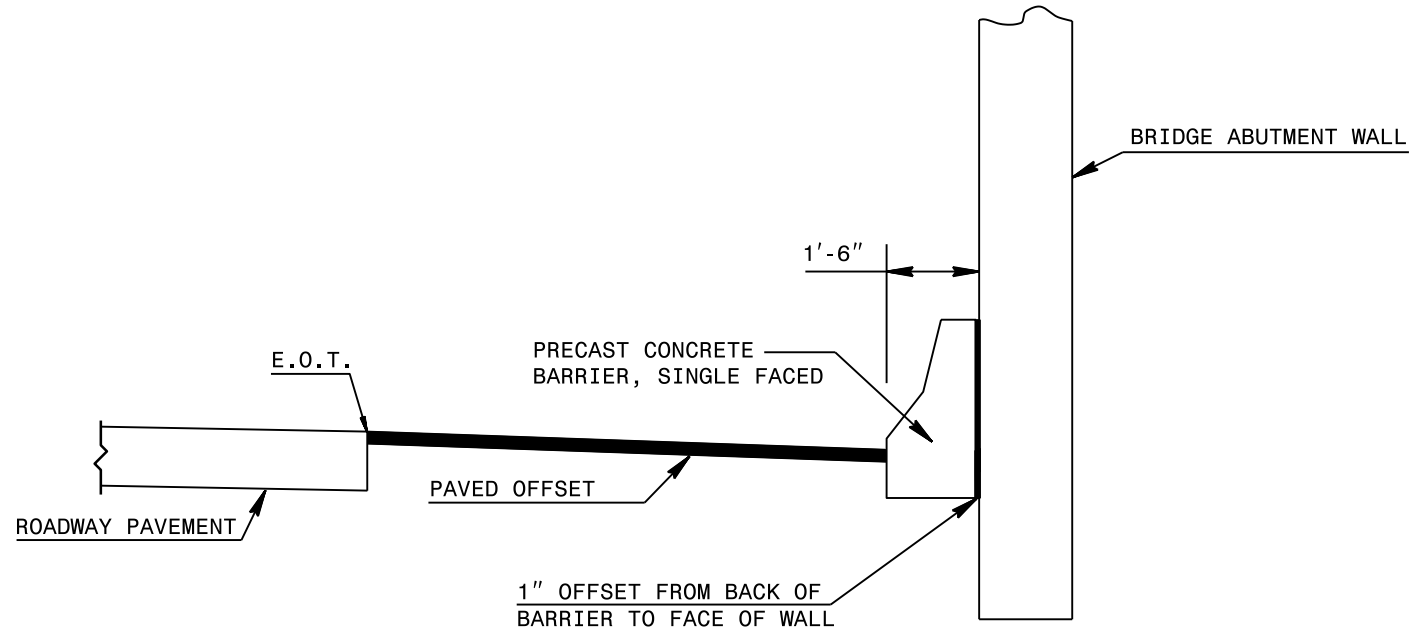
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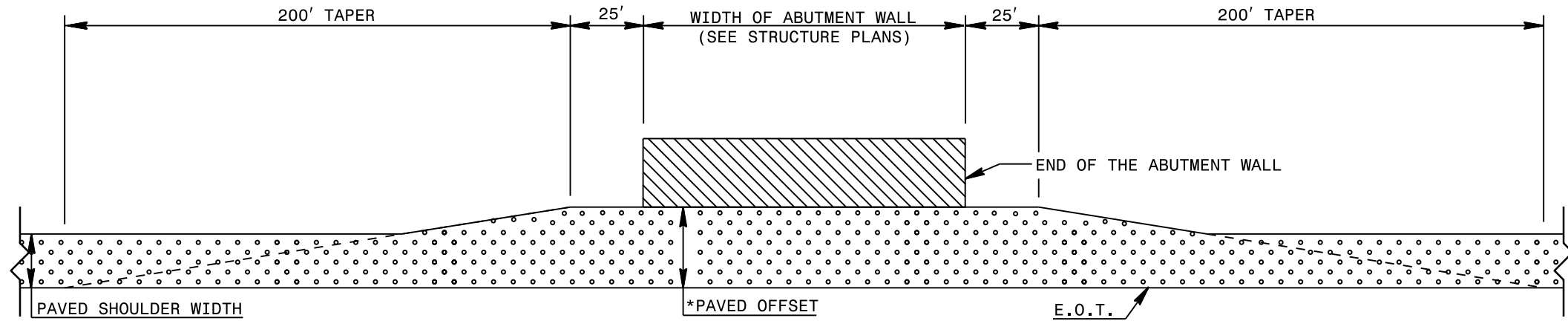
ENGLISH DETAIL DRAWING FOR
**GUIDE FOR PAVING
SHOULDER UNDER BRIDGES**
METHOD IV

SHEET 1 OF 1

610D04



ELEVATION



PLAN

NOTES:
PAVE THE FULL WIDTH OF THE SHOULDER AND OFFSET AS SHOWN WITH SHOULDER PAVEMENT MATERIAL
AS SHOWN ON PLANS.
*PAVED OFFSET BASED ON BRIDGE POLICY (SEE STRUCTURE PLANS).



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**BRIDGE VERTICAL AND HORIZONTAL
CLEARANCES OVER ROADS****6-1A**

Bridge horizontal and vertical clearances are provided in accordance with the criteria in 6-1 of this Chapter.

This paragraph was added with the 12-02-15 revision

→ The paved offset will vary based on the proposed end bent shoulder treatment under the bridge (bridge pier, guardrail, 6" slope protection, abutment wall). See 6-1, Figures F-1R and F-1S for details to be used with the Roadway Standard Drawings for clarification. The break point for the end bent slope is the same in each case. This will result in a consistent bridge length regardless of the end bent shoulder treatment.

The Roadway Design Project Engineer or Contract Standards and Development Engineer shall maintain close coordination with the Structure Management Unit during the planning stages when grades are being established. Any information that would affect the structure shall be furnished to the Structure Management Unit immediately.

Structure recommendations shall be provided to the Structure Management Unit in accordance with the sample structure recommendations that are covered in this chapter (see 6-6I).

**VERTICAL AND HORIZONTAL CLEARANCES
FOR HIGHWAY BRIDGES OVER RAILROADS****6-2**

The vertical clearance for a highway bridge over a railroad is 23'-0" to 23'-6", unless otherwise approved by the Railroad Company.

The horizontal clearance shown on 6-2, Figure 1 is the general horizontal clearances required; however, on the structure recommendations, no horizontal dimensions will be shown on the railroad typical section.

If accommodations are required for off-track equipment, a minimum distance of 8' shall be added to the horizontal distances. (See 6- 2, Figure 1)

The Structure Management Unit is responsible for the coordination of the bridge vertical and horizontal clearances with the railroad companies.

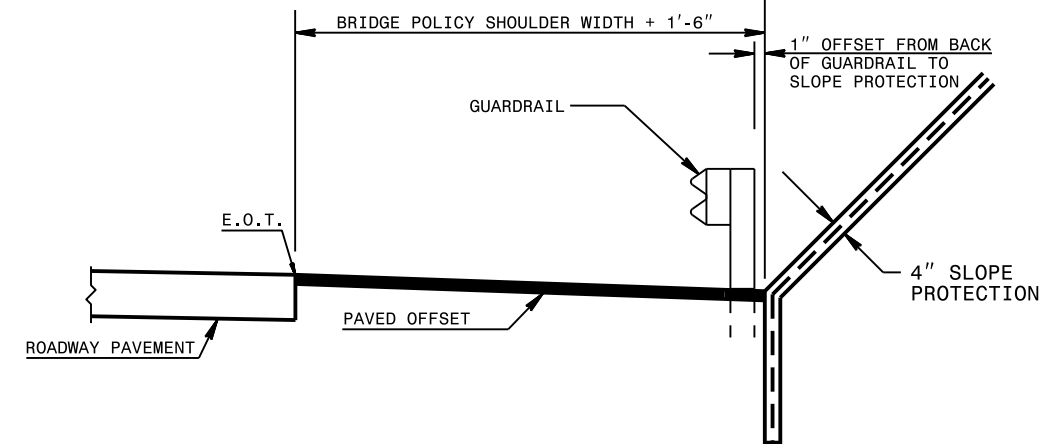
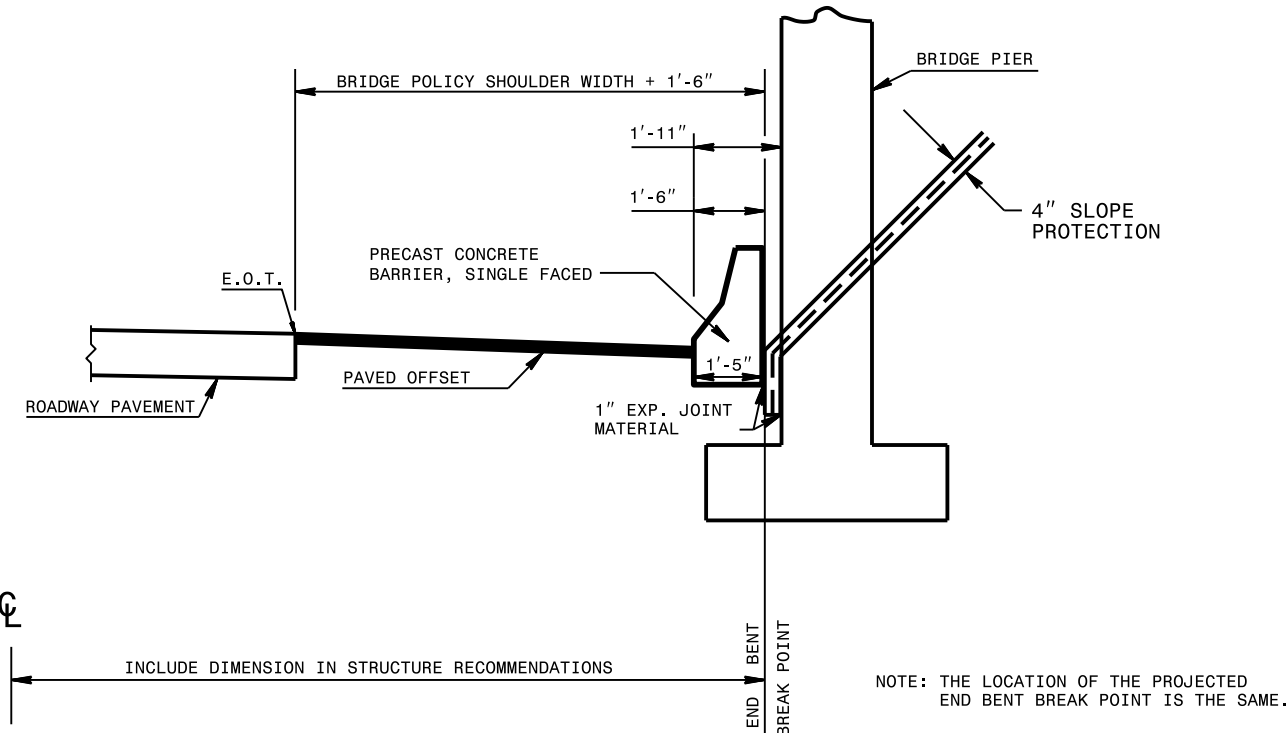
When structure recommendations are prepared for railroad structures, any information that is available shall be provided. It is realized that the information that will be available when the structure recommendations are prepared will be limited. The Roadway Design Project Engineer or Contract Standards and Development Engineer shall maintain close contact with the Structure Management Project Engineer until the final vertical and horizontal clearances have been approved.

FIGURE 1R

6-1
F-1R

**DETAIL WITH BRIDGE PIER
ON OUTSIDE SHOULDER UNDER BRIDGE**

TO BE USED IN CONJUNCTION WITH STANDARD DRAWING 610.01

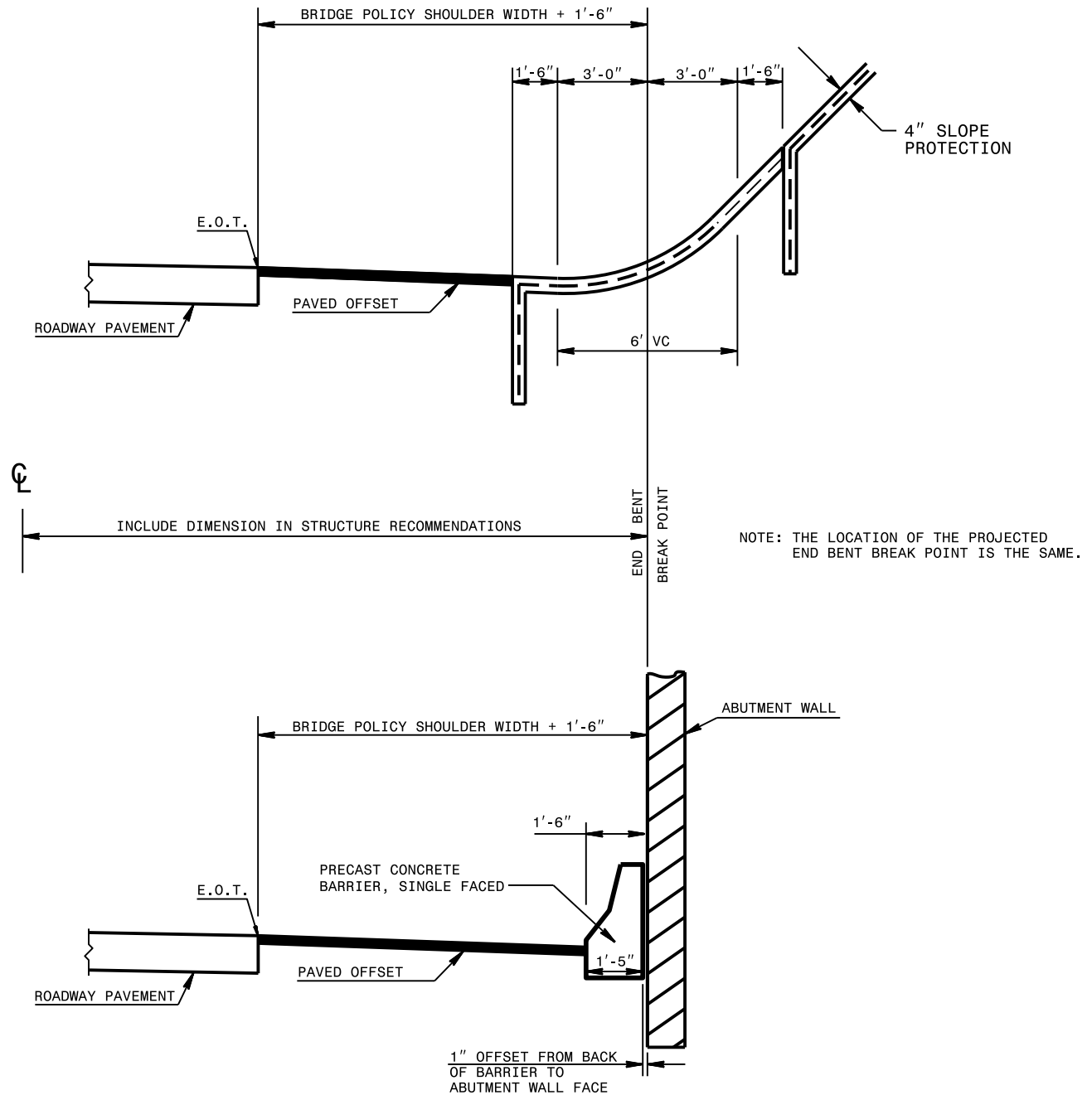


**DETAIL WITH GUARDRAIL ON
OUTSIDE SHOULDER UNDER BRIDGE**

TO BE USED IN CONJUNCTION WITH STANDARD DRAWING 610.02

DETAIL WITH 6" SLOPE PROTECTION (NO BARRIER) **ON OUTSIDE SHOULDER UNDER BRIDGE**

TO BE USED IN CONJUNCTION WITH STANDARD DRAWING 610.03



DETAIL WITH ABUTMENT WALL ON **OUTSIDE SHOULDER UNDER BRIDGE**

TO BE USED IN CONJUNCTION WITH STANDARD DRAWING 610.04